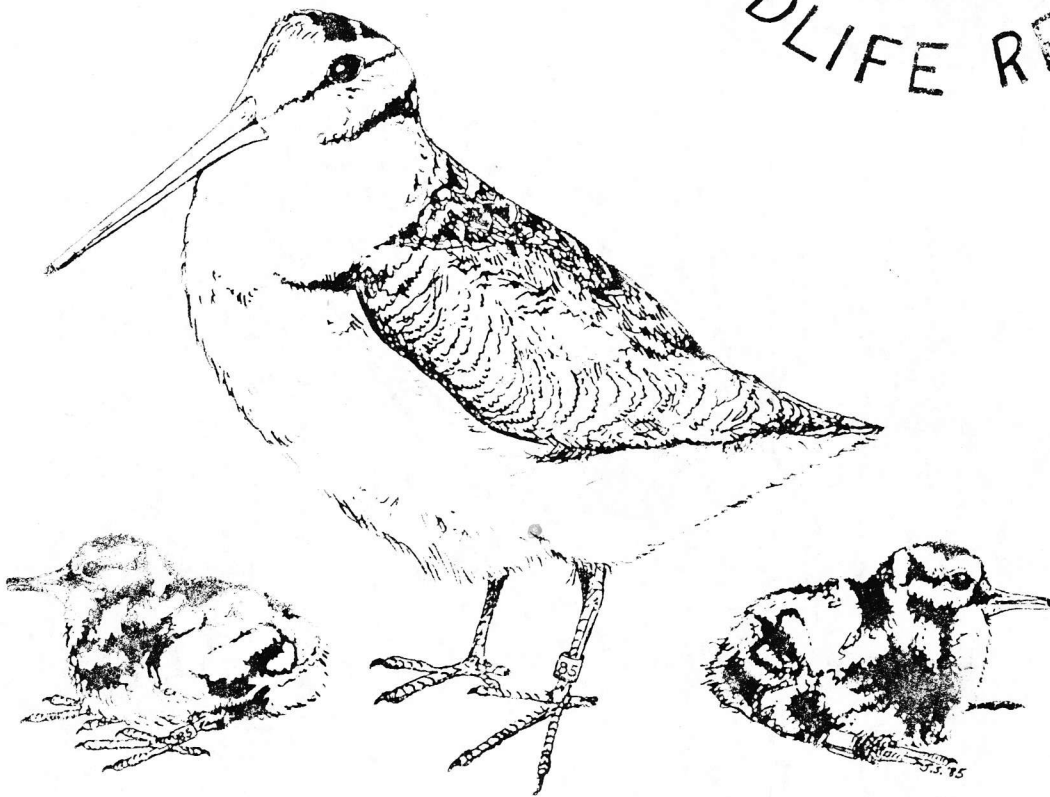


MOOSEHORN NATIONAL
85
WILDLIFE REFUGE



1985

STUDENTS' YEARLY REPORT

Student Crew: Chris Gosselin
Paul Luciano
Sylvia Pauly
Kevin Reyor
Vicky Silke
Andrea Sutton

This literary masterpiece is dedicated to;

Greg Sepik,

for reasons which are too numerous to mention,
and because "WE ALL LOVE GREGGIE" ;

Field 10,

for supplying woodcock, blueberries, and the
bears Andy never saw;

The Woodshed, The Lumberyard, Calais Motor Inn, Oak Bay,
and New River Beach,

for making the weekends as much fun as Greg made
the weekdays;

And finally, to the friendship that united 10 very different
people from seven states to compromise the best and most unique woodcock
crew that Moosehorn has ever, or will ever, have.

ABSTRACT

The main objective of the Moosehorn NWR. is to intensively study and manage the American woodcock, Scolopax minor. The six man woodcock crew used trapping, mistnetting, and nightlighting techniques to capture and band woodcock. The total number of birds caught in the 1985 season was 216. This number was lower than anticipated. A possible explanation for this is the increasing number of clearcuts, due to woodcock management practices, resulting in a dispersal of the woodcock population. This low concentration of birds per unit area may be a hindrance in catching large numbers of woodcock in future years.

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Introduction

Moosehorn National Wildlife Refuge is dedicated to the study of the American Woodcock, Scolopax minor. The woodcock spends it's winters in the southern atlantic coastal states, and in early spring migrates along the east coast to the northeastern states and Maritime provinces for breeding.

The location of Moosehorn N.W.R. near Calais, Me., an area of primary importance for woodcock breeding, distinguishes the 24,000 acre refuge as the only one dedicated to the study of woodcock in the entire United States. Although woodcock research has been ongoing at Moosehorn since the late 1930's, the woodcock's demand as a game bird is on the increase. Therefore the population dynamics, life studies, and management techniques being developed at Moosehorn are being used by small landowners interested in woodcock procreation and incorporated into forest management practices.

S. minor are encouraged to breed at Moosehorn by clear-cutting small areas. By rotating the kind and age of the vegetation cut in fields, a progressional series of forest types can be established which promote woodcock courting and roosting as well as rejuvenating brood, nesting, and diurnal cover. Many other species of wildlife also benefit from this habitat control, including ruffed grouse and white-tailed deer.

Direct study of population dynamics was obtained by the capture and banding of woodcock. Once a woodcock is captured the standard procedure is to band, sex and age the bird based on feather characteristics, weight, and recored the bill length. This year birds were captured by mistnetting, nightlighting, and trapping. The 1985 summer season began in mid-May

and continued through the end of August. Research was coordinated by Greg Sepik (4), Moosehorn's resident biologist who is also the world renowned expert on woodcock. Mr. Sepik was assisted by Nancy Phelps (6), a two-year veteran at Moosehorn who is happiest when holding a woodcock. Nancy is a graduate student at Penn State who survives on tuna fish.

The 1985 woodcock crew consisted of :



KEY

5 4 3 2 1
8 7 6

- (5) Chris "Quint" Gosselin (UMO-Yarmouth, Me.)-
"Holy Hershey Squirts !", Hawiian Tropic's poster boy, easy to please because everything is his "favoritest". Aficianado of wild roses and foster parent to all orphaned wildlife. Kept the crew moving "We're Mobile !", "Let's blow this Hamster ranch !".
- (2) Paul "Gomer" Luciano (SCA- Edinborough, Pa)-
"Beautious", loyal Frank Zappa fan, pinochle addict, and human accomplice in the domestic cats vie for the domination of man. Boy George fan-"Yes we really want to hurt him.." .
- (7) Sylvia "Brains" Pauly (SCA-Eugene, OR- Or-a-gun, NOT Or-e-gone). Trivia expert- Knows a little bit about everything from Kevin's beat up car to slugs (but she can't spell). Her favorite pastime was stumbling through clear cuts (Sylvia where are you ?!) and feeding mosquitoes. The infamous inventor of the multi-purpose fern fan. Astronomer and alchemist. The last to arrive and the last to leave.

- (1) Kevin "Sparky" Reyor (SCA-Chazy Lake, NY)-
 "MY,my,my,my,my there's just no hope for some people". A man with an un-natural knack for getting lost. Semi-loyal Mets fan ("Only when they win"), and frustrated fisherman who hates small-mouth bass. Mr. Goodwrench, foster parent to sick and dying cars (spent most of his spare time in the pits).
- (3) Vicky "Vic" Silke (UMO-Oldtown, Me.)
 "Ohhh...., huhmm", veteran wild-lifer and budding bird call expert. Spent most of her free time on the planet Dune (Oh no, they killed a good guy). Met her husband while catching grasshoppers.
- (8) Andrea "Andy" "Schwinn" Sutton (UMO-Wellesley,MA)-
 " How ya doin' cutie ?", Chris' accomplice in the pursuit of the perfect tan, expert on Atlantic Northeastern Icecream. Beloved chauffeur to all at Moosehorn. Voted most fun to pick on.

Honorary members (not pictured) :

- Jim "Digger II" Burney (SCA- New Smyrna, FL.)-
 "How y'all doin' ?". Everyone's favorite surfing bum, has suction cups on his feet for walking over rocks. Cursed with a sense of humor that endears him to cats, ethnic groups, and Maine locals. It was always a challenge to get Jim past the Canadian border guards (Narcotics, sure,we got 'em !).
- Mike "Digger I" Zieser (SCA-Urbana, Ia.)- Owner of gorgeous eyes and a squatty body that always believes in one more beer and another log on the fire. Good ol' country boy, lover of country music, baseball, and 'coon huntin'.
- Jason "Vergil" Barker (Union, ME.)- "What a bahgan" (A bargain to non-Mainers). Professional volunteer, always ready to give 110%. Cursed with "lady killer eyes", a dashing smile, and a tan that even Chris Gosselin would envy.

When not occupied with mistnetting, nightlighting, or running traplines this superior crew amused themselves fixing mistnets, mushrooming stakes, creating and resurrecting traplines, killing small Christmas trees to clear mistnetting fields, surveying thick alder swamps, doing wildlife pellet count transects, and coverytipping, and coverytipping, and coverytipping.....

TRAPLINES



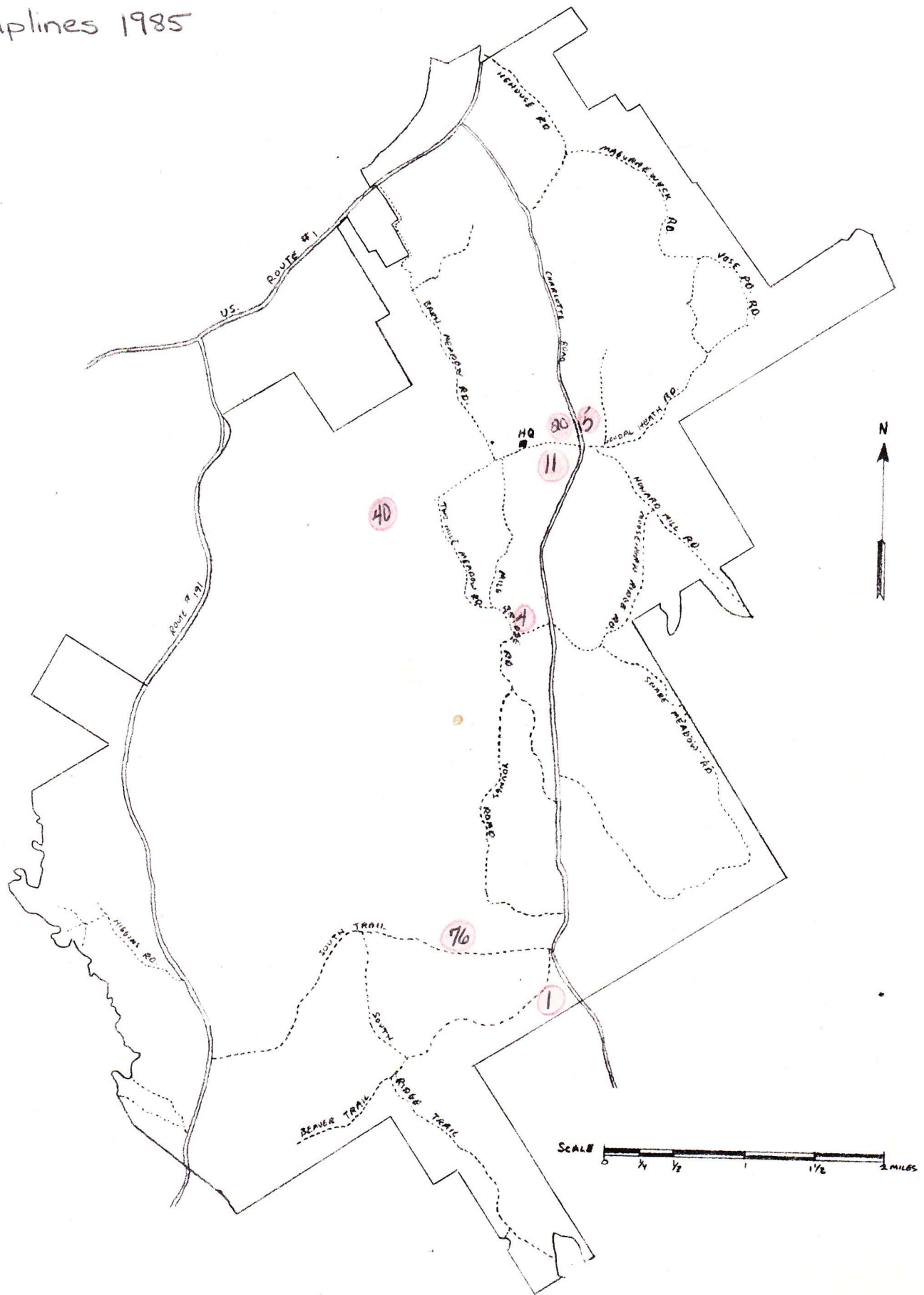
Traplines were used to capture Woodcock in their diurnal habitat. Each line consists of numerous modified shore bird traps. Cells were constructed with 2.5 by 5.0 cm welded wire shaped into a circle with one or more openings. Each cell was covered with nylon nets and connected at the trap cell openings by lengths of chicken wire staked vertically, called leads. (photos)

The traplines work along this principle: the ground on either side of the chicken wire leads and cells was hoed out, encouraging the Woodcock to probe in the ground for earthworms and insects along the chicken wire lead to the opening of the trap. The funnel-shaped opening allowed the bird to enter, but made it difficult for them to escape. Trapline maintenance, such as hoeing, straightening lead wires, and fixing overturned cells was important in keeping the traps at optimum working condition.

All traplines were located in or around alder stands, a preferred diurnal habitat for woodcock. Each line contained 8-23 traps with 21-58 individual cells. The lines were checked daily at 8:00 a.m. by two people. Seven traplines were operating in 1985. Trapping began on lines 1,4,11,20, and 76 on June 6. Trapping began on line 5 on June 11. Line 40, a new line started this year, began on June 26. All trapping ceased on August 21.

An array of non-target species were often caught in the traps; this included thrushes, flickers, grouse, and even porcupines, frogs, turtles, and hares now and then. These species were immediately released after recording their location. For woodcock, the standard procedure was followed and the information recorded. There were no major problems with the traplines this summer. Predation was infrequent and woodcock mortalities were low.

Traplines 1985



Moosehorn National Wildlife Refuge

Table 1. Summary of Trapline Captures

Trapline #	# of Cells	HY-M	HY-F	SY-M	SY-F	ASY-M	ASY-F	*	TOTAL	Total Birds # Cell Days
1	31	9	1	0	1	0	1	0	12	.005
4	22	3	4	0	0	2	0	0	9	.005
5	58	5	9	3	1	0	0	0	18	.004
11	21	1	3	3	0	1	0	0	8	.005
20	28	0	1	0	1	0	3	0	5	.002
40	43	7	5	0	1	0	2	0	15	.006
76	21	10	1	3	1	2	2	1	20	.012
Total		35	24	9	5	5	8	1	87	.005

* mortality, unknown age and sex

MISTNETTING



Mistnetting takes advantage of the woodcock's behavior of flying into fields each evening to roost. The 1985 woodcock crew began mistnetting on June 10. Eight fields, including blueberry fields as well as clearcuts, were mistnetted each week, usually Monday through Wednesday evenings. Approximately half an hour before dusk, the fine-meshed 10x60 foot nets were taken down. Observers waited for the unsuspecting woodcock to fly into the nets. The woodcock were then banded, aged and sexed by wing feather characteristics, weighed and had the bill length measured before being released. Non-target animals such as thrushes, woodpeckers, cedar waxwings and bats were caught and released (sometimes with difficulty). At the end of the 20-30 minute flight period, when woodcock were no longer observed entering the field, the nets were furled.

The arrangement of the nets in each field was changed when the birds had become accustomed to net positions and were seen avoiding them. Mistnetting was not done in the rain because the woodcock might become soaked when being removed from the net and it's feathers could easily be dislodge. If conditions were right for nightlighting, those fields which had been mistnetted previously that week were not night-lighted and vica versa. In this way, birds were not disturbed more than once a week in any one field. Mid-way through the summer the mist nets in McCrae were removed, due to poor results, and were placed in a field on Young's Rd. Mistnetting was concluded in late August when nets were removed.

MIST-NETTING FIELDS
1985



Table 2. Summary of Mistnetting Results

Field	Date	#Nets	#Birds	#HY	#HY Net	#SY	#SY Net	#ASY	#ASY Net	#Birds Net	#s	#s Net	#s	#s Net
1	7/9	24	4	4	0.17	0	0.00	0	0.00	0.17	4	0.17	0	0.00
7	6/13	13	1	1	0.08	0	0.00	0	0.00	0.08	1	0.08	0	0.00
	7/3	13	1	0	0.00	1	0.08	0	0.00	0.08	1	0.08	0	0.00
	7/16	13	1	1	0.08	0	0.00	0	0.00	0.08	0	0.00	1	0.08
	7/23	13	1	1	0.08	0	0.00	0	0.00	0.08	1	0.08	0	0.00
	8/7	12	1	1	0.08	0	0.00	0	0.00	0.08	0	0.00	1	0.08
10	7/18	18	1	1	0.06	0	0.00	0	0.00	0.06	0	0.00	1	0.06
	8/6	18	1	1	0.06	0	0.00	0	0.00	0.06	1	0.06	0	0.00
	8/20	18	1	1	0.06	0	0.00	0	0.00	0.06	0	0.00	1	0.06
39-40	6/12	18	1	0	0.00	0	0.00	1	0.06	0.06	0	0.00	1	0.06
	6/19	18	1	0	0.00	1	0.06	0	0.00	0.06	0	0.00	1	0.06
	7/8	18	2	2	0.11	0	0.00	0	0.00	0.11	1	0.06	1	0.06
	7/23	18	1	1	0.06	0	0.00	0	0.00	0.06	1	0.06	0	0.00
	8/6	16	1	0	0.00	0	0.00	1	0.06	0.06	0	0.00	1	0.06
79-24	7/17	13	2	2	0.15	0	0.00	0	0.00	0.15	1	0.08	1	0.08
	7/24	14	1	1	0.07	0	0.00	0	0.00	0.07	1	0.07	0	0.00
	8/19	14	1	0	0.00	0	0.00	1	0.07	0.07	1	0.07	0	0.00
79-31	7/23	16	1	1	0.06	0	0.00	0	0.00	0.06	0	0.00	1	0.06
	8/1	16	2	2	0.13	0	0.00	0	0.00	0.13	2	0.13	0	0.00
	8/15	15	1	1	0.07	0	0.00	0	0.00	0.07	1	0.07	0	0.00
	8/21	16	1	1	0.06	0	0.00	0	0.00	0.06	1	0.06	0	0.00

Table 2. Summary of Mistnetting Results (cont.)

Field	Date	#Nets	#Birds	#HY	#HY Net	#SY	#SY Net	#ASY	#ASY Net	#Birds Net	# s Net	# s Net	# s Net
80-19	6/10	22	2	1	0.05	0	0.00	1	0.05	0.09	2	0.09	0
	6/17	15	1	1	0.07	0	0.00	0	0.00	0.07	1	0.07	0
	6/25	22	4	3	0.14	1	0.05	0	0.00	0.18	1	0.05	3
	7/1	22	2	1	0.05	0	0.00	1	0.05	0.09	0	0.00	2
	7/8	22	11	6	0.27	3	0.14	2	0.09	0.50	7	0.32	4
	7/15	22	5	3	0.14	1	0.05	1	0.05	0.23	3	0.14	2
	7/22	18	1	1	0.06	0	0.00	0	0.00	0.06	1	0.06	0
	7/29	21	1	0	0.00	0	0.00	1	0.05	0.05	0	0.00	1
	8/5	19	1	1	0.05	0	0.00	0	0.00	0.05	1	0.05	0
	8/12	21	1	0	0.00	0	0.00	1	0.05	0.05	0	0.00	1
	8/19	21	2	0	0.00	0	0.00	2	0.10	0.10	1	0.05	1
80-50	6/19	15	1	0	0.00	0	0.00	1	0.07	0.07	0	0.00	1
80-62	7/10	12	3	1	0.08	2	0.17	0	0.00	0.25	2	0.17	1
	7/15	12	4	4	0.33	0	0.00	0	0.00	0.33	2	0.17	2
	7/22	11	2	2	0.18	0	0.00	0	0.00	0.18	0	0.00	2
	7/29	11	2	2	0.18	0	0.00	0	0.00	0.18	1	0.09	1
	8/12	12	2	2	0.17	0	0.00	0	0.00	0.17	2	0.17	0
	8/19	12	1	0	0.00	0	0.00	1	0.08	0.08	0	0.00	1

NIGHTLIGHTING



Nightlighting was the method used to capture birds during the dark, rainy nights. A total of 10 nights between the dates of June 16 and August 26 were used for nightlighting . Three types of fields were nightlighted; blueberry fields, clearcuts, and meadows.

In blueberry fields and clearcuts, nightlighting was performed by walking through the fields in an organized manner. Two people used high intensity quartz hand lights with which they lit the area directly ahead of them with slow sweeping beams. On either side of the lighter were people equipped with long handled nets (10-15 feet in length) Smaller handheld nets were carried by the lighters in the event that a bird landed next to them. As the line of people proceeded through the field, birds were flushed and spotted with a single beam of light. The bird

would circle the area, become attracted to the light, and hopefully land where a person could net it on the ground. Once captured standard procedure was followed.

In meadows, strips were cut by a mower so that a jeep could easily drive through. This technique of nightlighting used at least three people; one lighter, one netter, and one driver. The lighter and netter sat on the hood of the vehicle watching for roosting woodcock along the strip edges. The objective of this method was to net the bird before it flushed.

Nightlighting fields and clearcuts appeared to be the most productive method of capturing a large number of birds at one time. One critical factor of nightlighting was that the weather had to be just right in order to successfully capture birds. Heavy cloud cover, steady rain, and no fog were the optimum conditions to prevent the birds from flying out of the fields towards the horizon.

A hand-drawn map of a military installation, likely Fort Belvoir, showing various roads, trails, and numbered locations. The map is oriented with North at the top, indicated by a north arrow. A scale bar at the bottom right shows distances from 0 to 2 miles. The map includes several roads: US Route #1, Route #191, Route #10, Route #11, Route #12, Route #13, Route #14, Route #15, Route #16, Route #17, Route #18, Route #19, Route #20, Route #21, Route #22, Route #23, Route #24, Route #25, Route #26, Route #27, Route #28, Route #29, Route #30, Route #31, Route #32, Route #33, Route #34, Route #35, Route #36, Route #37, Route #38, Route #39, Route #40, Route #41, Route #42, Route #43, Route #44, Route #45, Route #46, Route #47, Route #48, Route #49, Route #50, Route #51, Route #52, Route #53, Route #54, Route #55, Route #56, Route #57, Route #58, Route #59, Route #60, Route #61, Route #62, Route #63, Route #64, Route #65, Route #66, Route #67, Route #68, Route #69, Route #70, Route #71, Route #72, Route #73, Route #74, Route #75, Route #76, Route #77, Route #78, Route #79, Route #80, Route #81, Route #82, Route #83, Route #84, Route #85, Route #86, Route #87, Route #88, Route #89, Route #90, Route #91, Route #92, Route #93, Route #94, Route #95, Route #96, Route #97, Route #98, Route #99, Route #100. The map also shows several trails: Beaver Trail, South Trail, Ridge Trail, and others. Numbered locations are marked with green squares and numbers: 41, 10, 11, 20, 39, 79-31, 7. The map is a detailed sketch of the installation's layout.

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TABLE 3. Nightlighting Field Data Analysis

Field	# birds caught	# observers	# hours in field	# man-hrs.	# flushes	total birds in field	birds man-hr.	captures man-hr.
1 6/16	2	7	1	7	4	6	.9	.3
6/27	0	6	.75	4.5	6	6	1.3	0
8/8	2	7	1	7	4	6	.9	.3
8/26	6	9	1	9	4	10	1.1	.66
7 6/18	2	7	.5	3.5	0	2	.57	.57
7/31	1	3	.75	2.25	0	1	.4	.4
10 6/16	4	7	1	7	0	4	.57	.57
6/26	2	6	.75	4.5	7	9	2	.4
8/26	4	8	.75	6	4	8	1.3	.6
11 6/13	0	jeep	.75	.75	0	0	0	0
8/15	1	jeep	.75	.75	2	3	4	1.3
8/25	0	jeep	.5	2.5	1	1	.4	0
20 6/13	0	jeep	.5	.5	0	0	0	0

TABLE 3. Nightlighting Field Data Analysis (con't)

Field	# birds caught	# observers	# hours in field	# man-hrs.	# flushes	total birds in field	birds man-hr.	^{captures} man-hr.
41 7/31	2	3	1.75	5.25	8	10	1.9	.4
8/15	5	4	1.75	7	15	20	2.9	.7
8/25	14	5	3.07	15.35	18	32	2.08	.9
39-40 6/16	0	4	.5	2	2	2	1	0
8/26	3	8	1.25	10	9	12	1.2	.3
79-31 6/18	3	7	1	7	0	3	.43	.4

TABLE 4. Summary of Nightlighting Captures

Field	HY-M	HY-F	AHY-M	AHY-F	SY-M	SY-F	ASY-M	ASY-F	M	F
1	5	1	0	2	2	0	0	0	7	3
7	3	0	0	0	0	0	0	0	3	0
10	3	2	1	0	2	0	1	1	7	3
11	0	1	0	0	0	0	0	0	0	1
20	0	0	0	0	0	0	0	0	0	0
41	8	6	3	2	2	0	0	0	13	8
39-40	1	1	0	0	0	1	0	0	1	2
79-31	1	0	0	0	0	2	0	0	1	2
80-50	0	0	0	0	1	0	0	0	1	0
Total	21	11	4	4	7	3	1	1	33	19

TABLE 5. Yearly Capture Summary (1964-1985)

<u>Year</u>	<u>New</u>	<u>Returns</u>	<u>Repeats</u>	<u>Totals</u>
1964	221	17	110	348
1965	151	25	129	305
1966	249	20	135	404
1967	270	22	99	391
1968	191	24	116	324
1969	297	13	123	433
1970	175	31	86	292
1971	221	23	142	386
1972	335	23	173	531
1973	319	16	97	432
1974	381	30	184	595
1975	280	17	92	390
1976	294	20	122	436
1977	423	44	265	732
1978	474	53	257	784
1979	325	55	152	532
1980	344	57	102	502
1981	232	29	51	312
1982	229	25	92	346
1983	82	13	11	106
1984	99	14	29	142
1985	163	11	42	216

TABLE 6. 1985 BANDING RESULTS

	<u>New Birds</u>	<u>Returns</u>	<u>Repeats</u>	<u>New Bird Mortalities</u>	<u>Return Mortalities</u>
HY-M	70	-	19	2	-
HY-F	37	-	14	-	-
LU	2	-	-	-	-
LM	-	-	-	-	-
LF	-	-	-	-	-
SY-M	13	2	4	-	-
SY-F	12	-	2	-	-
ASY-M	3	3	1	-	-
ASY-F	9	6	2	-	-
UM	-	-	-	-	-
UF	-	-	-	-	-
UU	-	-	-	2	-
AHY-M	7	-	-	-	-
AHY-F	6	-	-	-	-
TOTALS	159	11	42	4	-

* * * * *

HY= Hatch Year Bird
L = Local Bird

SY= Second Year Bird
ASY= After Second Year

U= Unknown
AHY=After Hatch Year

Discussion

The total number of woodcock captured in the 1985 season was 216; 163 new birds, 11 returns, and 42 recaptures. Although we did not reach our goal of 500 birds, we were still pleased with the results. Trapline captures accounted for 41% of the total capture, nightlighting 25%, and mistnetting 34%.

Traplines performed better than last year with 87 birds. Trap captures were fairly consistent throughout the summer despite slight rainfall fluctuations.

Nightlighting proved to be the most efficient means of capture in terms of birds per man hour. Nightlighting results would have been better if the weather had been worse. The weather provided 10 opportunities during the summer to nightlight.

Mistnetting capture totals were disappointing considering the amount of time and effort put into it. Seventy-four birds were mistnetted. It was observed that on evenings with a full moon, woodcock were reluctant to fly into open fields, preferring more protected clearcuts. This may have been a contributing factor, since 5 of the 8 mistnetting fields had minimal cover.

Due to the woodcock management techniques practiced on the Moosehorn NWR, there is an increasing number of clearcuts available for woodcock use. Although clearcutting encourages woodcock dispersal, which promotes population growth, the resulting low concentration of birds per unit area creates a difficulty in capturing high numbers of birds mistnetting. This may explain why we did not achieve the expected quota of birds.

CRITIQUE

The general consensus of the student crew is that the summer went smoothly, yet there are some improvements which could be made in capture techniques to increase woodcock yield.

Although trapline performance was satisfactory, more frequent trapline maintenance would improve woodcock capture. It is important to be aware of trapline success as well as the successional stage of the surrounding vegetation. If a trapline is doing consistently poorly in regards to captures and flushes, additional areas should be sought for new traplines for future use.

Concerning mistnetting, it is recommended that the position of mistnets be changed more often (possibly every 2 weeks) to deter birds from becoming accustomed to their locations. The addition of more nets to fields, especially along the perimeters would be advantageous. A shortage of iron stakes was a problem this year. Since few birds were caught mistnetting during moonlit nights some advance planning noting which nights the moon would be full, could increase mistnetting success. The planning would better utilize dense clearcuts on moonlit nights as opposed to open fields.

Nightlighting results were dependent on the weather and therefore are difficult to improve. However, we feel that since barn meadow was not strip cut earlier in the summer some valuable nightlighting opportunities were missed. Since nightlighting is the most successful use of man hours, we recommend that nightlighting with the jeep be done more often, even on cloudy nights without rain. This is suggested because it seems that active

pursuit of the woodcock is more efficient than passively waiting for them in mistnetting and trapline techniques.

With each of the three capture methods, it is important to be constantly looking for new capture areas since dispersal is so prevalent.

In conclusion, the only other critique was that the summer was too short. The entire woodcock crew wishes to express their gratitude to Greg Sepik for providing us with a great summer filled with laughter and good times (and an even better awards banquet); to the timberdoodle for keeping us on our toes; and to each member of the woodcock crew for making the summer of 1985 a fantastic experience we will never forget.